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# Dehorning Castrating Branding and Marking



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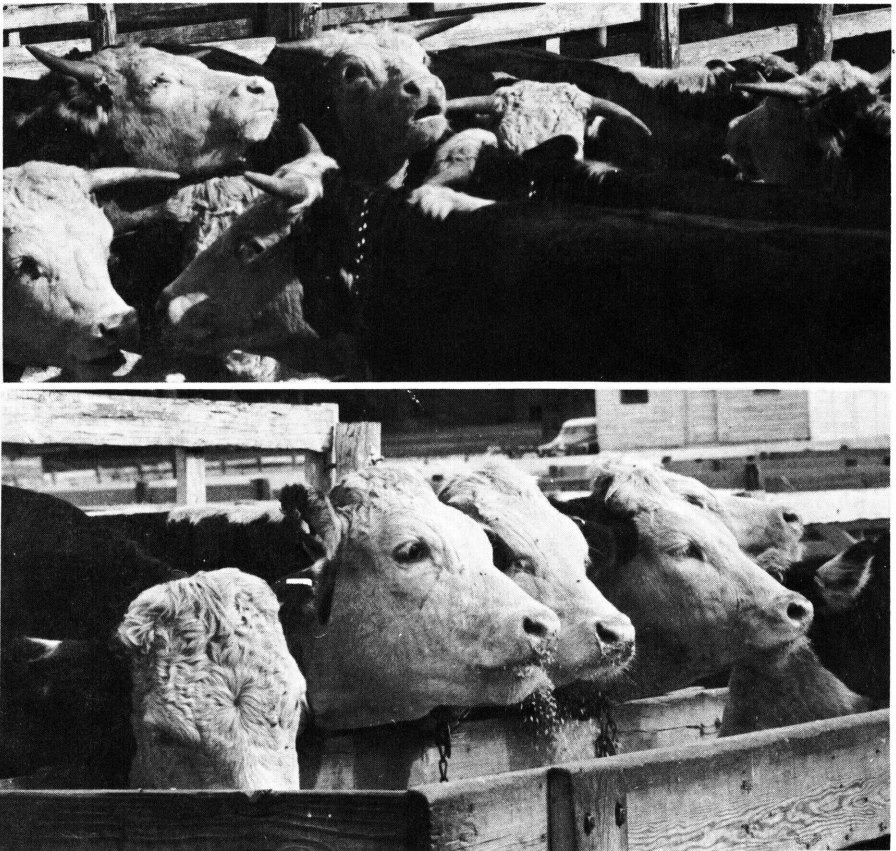


Figure 1.—Horned cattle need more space than cattle without horns.  
(Courtesy of South Dakota State College.)

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# Dehorning, Castrating, Branding, and Marking

*Prepared by  
Northeastern Region Agricultural Research Service<sup>1</sup>*

## DEHORNING

Horned cattle require more space on feed grounds, at feed troughs (fig. 1), and in transit to market than cattle without horns. Cattle without horns are easier to feed and arrive at markets with fewer bruises. Bruises lower carcass values.

Use effective and humane methods in dehorning. Exercise care in dehorning show animals or prospective show animals so they will have attractive appearing heads.

Age is an important factor in dehorning and often determines the method to be used. Young animals are easier to handle than older ones. The aftereffects they suffer are usually slight, and, if done properly the first time, their dehorning need never be repeated. Very young calves in which the horn button has grown only a little can be dehorned by applying caustic or a commercial dehorning paste to the horn button (fig. 2). Slightly older calves with horns or horn buttons not over  $\frac{1}{2}$  to  $\frac{3}{4}$  inch long easily can be dehorned with heated dehorner (fig. 3), of which there are a number of desirable kinds. Horn buttons sometimes are cut off with a knife or other sharp instrument before the iron is applied. Older

animals must have their horns removed with mechanical devices (figs. 4 to 9) or with hand or electrical saws (figs. 10 and 11).

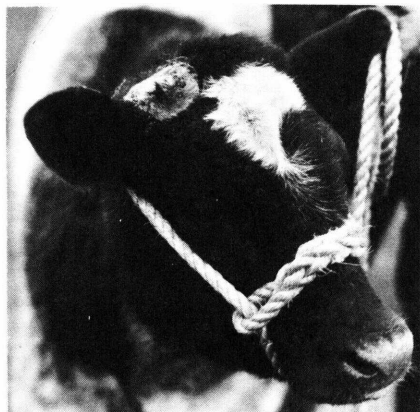
Electric dehorning saws should lessen the operation time considerably, save labor, and minimize discomfort to the animal. Electric saws are more expensive than other types of dehorning equipment and their disinfection is more of a problem since the entire machine cannot be submerged. The blades must be swabbed with disinfectant.

Adequate restraining equipment is needed for dehorning operations. A combined branding and dehorning chute with one movable side (known as a "squeeze") is widely used in the range country. On farms, where branding is not a common practice, chutes with stationary sides are usually used. Plans for a homemade squeeze and a recommended type of stanchion gate are shown in figures 12 and 13.

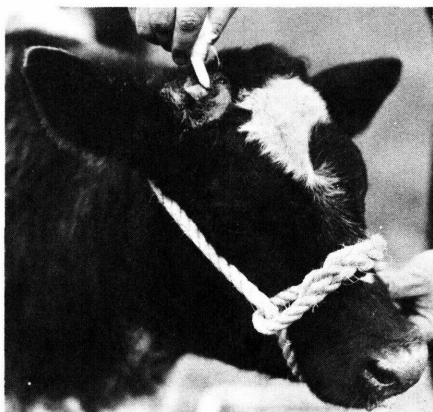
## DEHORNING CALVES

In small, closely supervised herds, where chemical methods are used, calves usually are dehorned a few days after they are born. If caustic soda or potash is used to dehorn calves, clip the hair from around the base of the small, undeveloped horns or buttons and apply petrolatum to

<sup>1</sup> Reviewed by R. R. Oltjen and P. A. Putnam.



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Figure 2.—*Left*, Hair has been clipped and petrolatum applied around the undeveloped horn. *Right*, Applying caustic to the undeveloped horn.

prevent the caustic from touching the skin. Caustic applied directly to unprotected skin burns it severely.

Wrap one end of a caustic stick in paper or cotton and moisten either the exposed end or the area of the horn button. Moisten lightly because too much water will cause caustic to flow out of the horn button site. Rub horn button and the area immediately around it with the exposed end of the stick. Experience will determine the success of the operation. Degree of destruction of the horn growth area depends on number of applications, pressure used, area covered, and the amount of moisture present. Calves dehorned with caustic should be protected from rain for a few days following treatment.

If dehorning paste is used to dehorn calves, cover the horn button with a dime's thickness of paste applied with a stick. No preliminary clipping is necessary.

Calves past the button stage can be dehorned with heated irons (fig. 3), metal spoons or gouges (fig. 4), tube dehorner (fig. 5), or Barnes-type dehorner (fig. 6). The type of instrument best suited to a particular opera-

tion depends largely on horn size. The horn always should be removed with a ring of skin to prevent further horn growth.

Spoons (or gouges) and tubes work best on calves that are less than 60 days old. Different sizes of dehorning tubes ordinarily can be purchased in sets of 4. Select the size of tube that fits over the base of the horn and about  $\frac{1}{8}$  inch of skin around the horn. Place the cutting edge straight down over the horn. Push and twist until the skin has been cut through, then use the cutting edge of the tube to cut under the horn button area to remove it.

The Barnes-type dehorner can be used on larger horns more easily than the other instruments. They sometimes are used to dehorn yearlings or older cattle. To use a Barnes-type dehorner, close the handles and fit the knives over the horn. Make certain the knives are correctly positioned to remove a ring of skin with the horn. Spread the handles apart quickly, thus closing the knives and removing the horn.

The hot-iron method of dehorning is widely used in range areas. Since



## Disinfecting Instruments

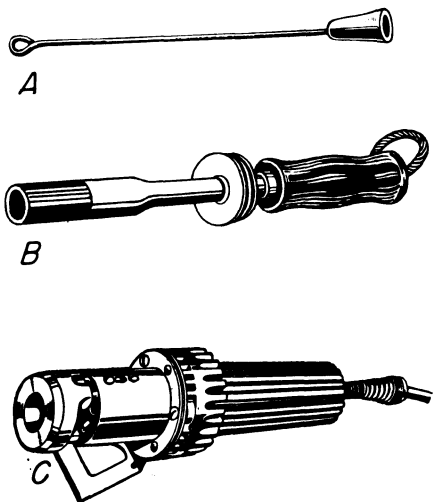
Instruments used for dehorning or castrating should be cleaned and should be disinfected before and after each operation to prevent the introduction and spread of infectious and contagious diseases. This is especially important in areas where anaplasmosis is prevalent or suspected.

Wash used instruments in cold

water to remove blood. Then soak them in compound solution of cresol or saponified cresol (also called cresylic disinfectant). Make the solution by adding 4 ounces of cresol to 1 gallon of water. Put two or more sets of the instruments in disinfecting solution and use in turn. Change the diluted solution frequently so its strength can be adequately maintained.

the development of electrically heated branding irons, it is becoming more widely used in farm beef herds and dairy herds as well. It is commonly used to dehorn calves up to 4 or 5 months old.

The hot-iron method of dehorning is reasonably rapid and practically bloodless. Irons other than the electric type are sold in sets. Select the size that fits the horn to be removed. Heat the copper-capped head of the iron and burn around the horn or the horn base. The horn or button then will slough off in 4 to 6 weeks.



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Figure 3.—Dehorning irons. B and C are electrically heated.

## DEHORNING OLDER CATTLE

The dehorning clipper (fig. 8) is the most efficient instrument for dehorning older cattle. To use it, place the opened blades over the horn and quickly close the long handles. Make the cut deep enough to remove a ring of skin with the horn. The deep cut destroys the modified skin cells from which horns grow. The deep cut also exposes the larger blood vessels in soft tissue and gives them an opportunity to contract, thereby decreasing the amount of postoperative bleeding.

When large animals are dehorned, bleeding can be further minimized by using forceps to pick up the main artery on the ventral, or under, side of the cut. Pull the artery until it breaks. The broken artery retracts—goes back into the softer tissues—and bleeding stops.

Dehorning saws (figs. 10 and 11) can be used either for trimming the ends from horns or for removing the entire horn. Their use is necessary when the horn base is too large for clippers or when abnormal horn growth prevents the use of clippers. When saws are used for dehorning, always cut deep enough to remove a ring of skin and prevent later growth of abnormal, unsightly horn.

When saws are used for dehorning, local anesthetics usually are admin-

istered to eliminate the pain of the operation. Cows in lactation and in advanced pregnancy can be dehorned without seriously affecting milk production or jeopardizing pregnancies, if you use local anesthetic and cut deeply enough with either the dehorning clippers or a saw to expose the main artery so it can be pulled.

Animals that have been dehorned with any type of cutting instrument sometimes bleed severely. Owners of recently dehorned cattle should observe them closely for any serious bleeding for 12 to 24 hours. If bleeding occurs, pull arteries that haven't already been pulled, tie heavy string about the poll below the dehorned area, or apply tight bandages to the wounds to stop the blood flow. Call your veterinarian if bleeding continues.

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## CASTRATING

Castrating is removing the testicles. It is practiced because preferred beef qualities develop better in castrated males, or steers, than they do in uncastrated males, or bulls. Bulls 2 or more years old have heavy crests, and heavier forequarters than hindquarters. Most of the quality cuts of beef come from the hindquarters.

Animals to be castrated are thrown or held firmly or are placed in a squeeze or dehorning chute (figs. 12 and 13). Castrating should be done during cold weather.

Bull calves from a few weeks up to 8 months of age may be castrated without serious consequences. Hem-

## Treating Wounds

If dehorning or castrating is done in cool weather, when there are no flies, wound treatment is unnecessary. Take precautions, however, to see that dirt, manure, or other filth does not contaminate the wound. Certain infections are soil or filth borne. Provide clean, well-bedded stalls or clean pastures for newly dehorned or castrated animals.

If dehorning or castrating is done in warm weather, it usually is necessary to apply a fly repellent such as pine tar to the wound.

In some sections, especially in the Southwestern States, screwworm infestations may occur. After dehorning, castrating, branding, or marking, treat wounds with a product containing coumaphos or ronnel. Give special attention to any deep pockets made by the worms.

Repeat treatment at least twice a week until wounds are healed.

### Precautions

- Insecticides used improperly can be injurious to man and animals. Follow the

directions and heed all precautions on the labels.

Keep insecticides in closed, well-labeled containers in a dry place. Store them where they will not contaminate food or feed, and where children and animals cannot reach them. Promptly dispose of empty insecticide containers; do not use them for any other purpose.

Avoid repeated or prolonged contact of insecticide with your skin. If you spill any on your skin, wash it off immediately. If you spill an insecticide on your clothing, remove the clothing immediately and wash the skin thoroughly. Launder the clothing before wearing it again.

After handling an insecticide, do not eat, drink, or smoke until you have washed your hands and face. Wash any exposed skin immediately after applying an insecticide.

Bury empty insecticide containers at a sanitary landfill dump, or crush and bury them in a level, isolated place where they will not contaminate water supplies.

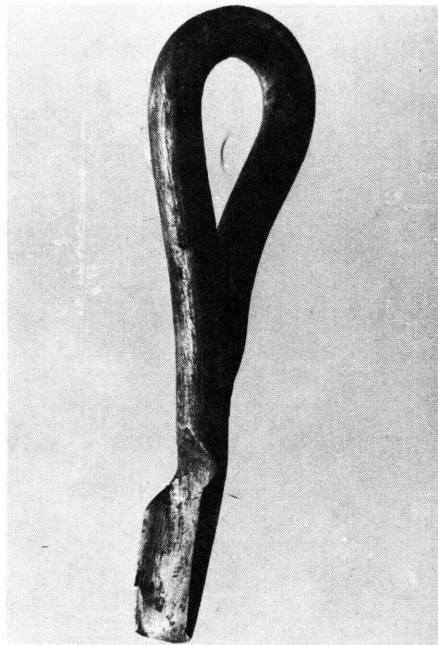
orrhage or bleeding is more pronounced in older animals, and greater care must be used in castrating mature bulls. If a bull calf is not castrated before he is 8 months of age, he may become "staggy," which is very objectionable in the feeder or fat steer.

There are three common methods of performing the operation. They differ in the locations in which the incision is made.

- The first method is to slit each side of the scrotum parallel to the middle line. The incision should be made on one side and the testicle removed from that side before the incision is made on the other side. The incision should be made over the center of the testicle, and from about the top one-third to the lower end. It is essential to extend the slit well toward the lower end of the scrotum so as to allow proper drainage. This method is particularly adapted to chute castration where the bull is standing and the operator works from the rear and between the legs.

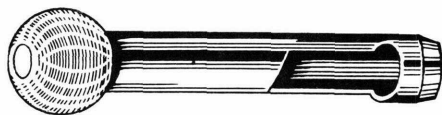
- In the second method the scrotum is stretched tightly, the testicles are forced upward or inward, and the incision is started on one side at right angles to the median line, cutting through the right and left sections of the scrotum and thence outward to the end of the scrotum. This method is best adapted to "cradle" operations where the calf is held firmly on his side or where the calf is held on the ground by two workmen. The procedure in this method usually is more rapid than in the first method, provides for maximum drainage, and, as in the case of the first method, permits normal development of the cod on healing.

- In the third method, the operator grasps the lower end of the scrotum, stretches it tight and cuts off the lower one-third. The ends of both



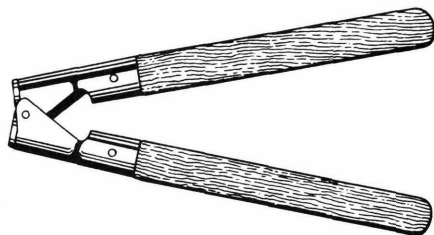
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Figure 4.—Metal spoon, or gouge, used by some cattle breeders for dehorning calves.



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Figure 5.—Tube dehorner.



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Figure 6.—A mechanical dehorner (Barnes type) especially adapted to dehorning calves. This type is available in two sizes, the larger of which can be used in dehorning animals that are up to about a year old.





Figure 7.—Using a Barnes-type dehorner and branding—in one operation. (Courtesy of Breeder's Gazette.)

testicles are exposed. The procedure is satisfactory and expedient for very young calves but unsatisfactory for well-developed calves or mature bulls. There usually is a swelling and constriction above the circular incision sufficient to restrict drainage and, unless it is reopened, death may result.

In all three methods, make the incision through the tissues to the testicle proper and remove one testicle at a time. This may be accomplished by pulling or pressing the testicle out of the scrotum and cutting it off, allowing 3 or 4 inches of the cord to remain on the testicle.

In young calves, the cord may be

cut off squarely, but in older bulls it is advisable to twist the cord rather tightly by holding it with the left hand and, with the right hand, twisting the free end before severing it. Some cattlemen prefer to draw the cord tightly over the index finger of the left hand and sever it by scraping with the knife. Either of these two methods of severing the cords on older animals has a tendency to check the flow of blood. It is necessary to perform the operation with clean instruments, under sanitary conditions. Wounds and any infection that may arise may be treated as outlined under Treating Wounds, page 6. Cases

where one or both testicles are retained within the stomach wall are not uncommon. These should be handled only by a veterinarian.

Two methods of "bloodless castration" are in common use.

- The first method calls for special pincers (fig. 14) that crush each cord separately an inch or two above the testicle. This method of castration is adaptable to farm herds and small ranches. It is a satisfactory means of castration if properly done, but if the operation is performed too hastily the cord may be incompletely crushed, and the steer is apt to develop stagginess later on. Care should be taken to see that the cord is placed between the jaws of the pincers before they are closed. As there is no break in the skin of the scrotum, there is no external bleeding; this is a great advantage in areas in which screwworms are troublesome. Steers so castrated usu-

ally develop larger and fuller cods by the time they are ready for market, a characteristic that is considered to be desirable in well-finished steers.

- In the second method, a tight rubber band is placed around the scrotum above the testicles by a special instrument. This shuts off the circulation of blood to the testicles and causes them to atrophy. This method results in a small cod, which some cattle feeders consider undesirable. Instruments for performing bloodless castration may be obtained from dealers who handle stockmen's supplies.

## SPAYING

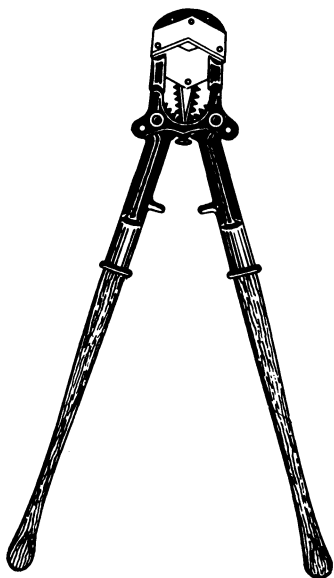
Spaying is removing the ovaries. Spaying is done to relieve management problems, when it is impossible or impractical to separate bulls from heifers that are scheduled for slaughter. It is also done before heifers are sold for feeding purposes or sold for retention and later slaughter.

Because of the cost of surgical spaying and the set-back and possible death loss, it is not a general practice.

Instead "chemical spaying" is now being used by feedlot operators. They feed heifers melengestrol acetate, which keeps them out of heat during the feeding period and also improves the rate of gain and feed efficiency. "Chemical spaying" reduces the cost and risk to the feeder. The compound or agent can be bought in supplements and concentrates from feed manufacturers.

## BRANDING

Branding and marking, as means of identifying cattle, were used in the earliest days of cattle raising in the United States. They still are widely practiced despite the many changes



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Figure 8.—A commonly used type of dehorning clipper. At least two sizes usually are available.



Figure 9.—Using a mechanical dehorner like the one shown in figure 8.  
(Courtesy of South Dakota State College.)

in methods of handling cattle.

Branding and marking are not used often where farms are small; the limited number of cattle raised each year can be identified readily from their natural markings.

Where many cattle are raised in large pastures or on the open range, branding is necessary. Range cattle often are earmarked as an additional means of identification.

A cattleman's brand is his trademark. Most successful ranchers take pride in their brands and guard them

closely. In all cattle-raising States, particularly the range States, the law deals severely with those found guilty of changing, or tampering with, brands or marks.

Letters, numerals, or other characters comprising the brand should be of a kind easily made. Intricate characters lead to confusion in brand reading as well as difficulty in branding.

In some Western States the law compels the branding of livestock that are to be turned out on the range. Nearly all Western States require that

records be kept of brands on slaughtered animals. Cattle brands used within a State ordinarily are registered and recorded by the State government. In Texas, however, each county handles its own brands.

Cattle that change ownership usually are rebranded. The old brands are blotted or crossed out.

Cattle are branded officially in the eradication of bovine tuberculosis and brucellosis (Bang's disease). Eradication projects are conducted cooperatively by the Federal Government and the States. Animals that react to

the tuberculin test are branded on the left jaw with a letter T; those that show a positive reaction to the test for brucellosis are branded on the left jaw with a letter B.

## AGE AT BRANDING

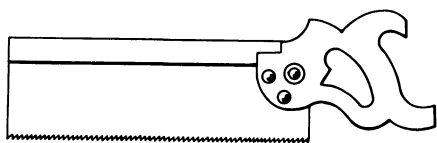
Cattlemen usually brand calves before they are weaned. The probability of a calf's going astray is greater after it is weaned than before it is weaned. Early branding lessens the possibility of these losses. When disputes arise as to the ownership of a calf, it is customary to concede ownership to the owner of the cow that claims the calf. This is particularly true where the open range is used or where mixing with other cattle is probable.

## METHODS

Three methods of branding are—applying a hot iron (fig. 15), using a cold iron dipped in a commercial branding fluid, and freezing with a coolant. All of these methods, if properly carried out, leave a permanent brand. The hot iron method has been extensively used for many years. The branding-fluid method is not generally used. Freeze branding, although still in the experimental stage, is gaining in popularity and usage.

Cattle that are to be branded are thrown (fig. 15) or squeezed in a chute. Throwing has given way somewhat to various methods of chute branding because branding can be done more easily in a chute. If chute branding is to be done, the location of the brand on the animal should be one easily reached through the bars of the chute.

It is difficult to build a chute, or squeeze, that will securely hold both small calves and older cattle. Con-



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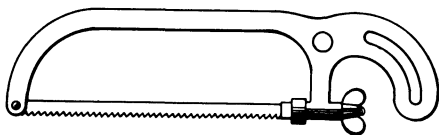
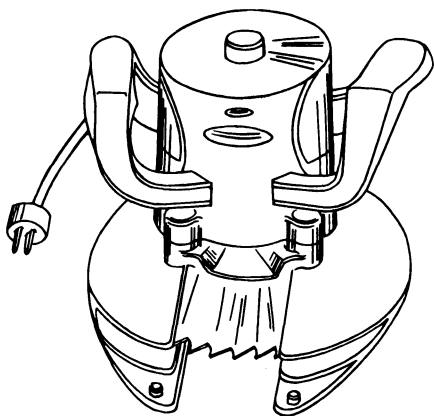
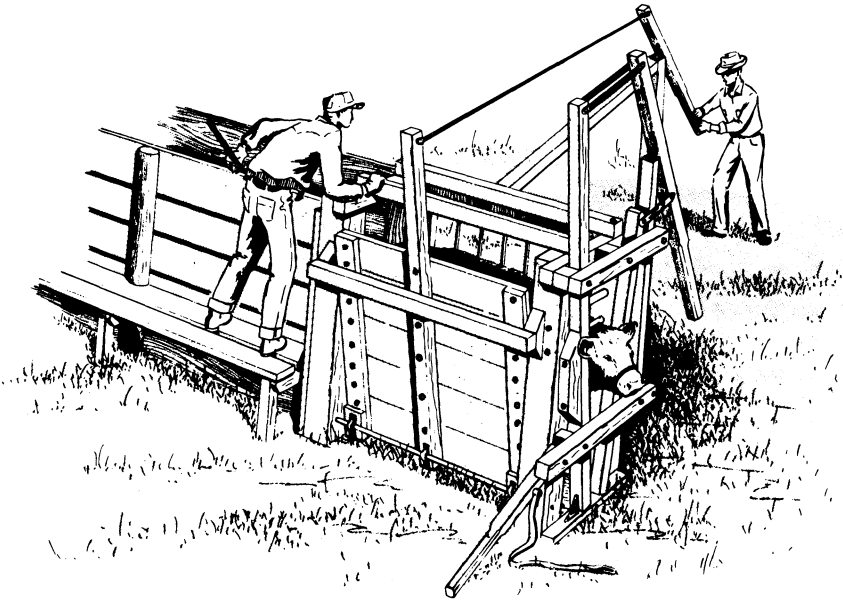


Figure 10.—Two types of hand saws commonly used in dehorning.



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Figure 11.—An electric dehorning saw.



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Figure 12.—Cattle squeeze chute. (Farm Building Plan 5465)

ventional-type chutes (figs. 12 to 13) are satisfactory for branding animals 1 year old and older. Improved tilting tables are satisfactory for calves.

Several different types of tilting tables for calves are on the market. All of them operate on a movable or turntable base. The calf is secured to the "cradle" and the appliance is given a 90-degree turn. It falls into position with the calf held securely on its side.

Chute-branding older cattle is better than throwing, but care must be taken in closing the squeeze. It is easy to crush a hip of an animal that is being confined in a powerful squeeze. The leverage of a squeeze should not be so great that the operator fails to perceive the degree of pressure applied.

## TYPES OF BRANDING IRONS

The two general types of branding irons are "running" irons and "stamping" irons. Running irons are simple

hooks. Their use is described below. Both types are used for hot branding, but the stamping iron is better for liquid branding.

Some States have laws that prohibit the use of running irons. In the hands of unscrupulous persons, they can be used effectively in changing brands.

There is little defense for the use of extremely large characters in a brand. A character 4 inches high is large enough for identification purposes, especially if the brand is applied when the animal is young. Characters with narrow angles should be avoided if a stamping iron is used; letter divisions are not refined enough to prevent blotching when the iron is heated. Open letters such as O, C, D, P, and Q can be made distinctly with a stamping iron. Such letters as A, M, N, W, and X usually can be made with a running iron by making the required number of applications to complete the letter.



The irons should be made with notches wherever bars join. The faces should be beveled and smooth. The rod or bar iron or steel from which the characters are made should be large enough to hold enough heat, yet small enough to make a neat line. Material between  $\frac{1}{4}$  and  $\frac{1}{2}$  inch in diameter is commonly used. Material  $\frac{3}{8}$  inch in diameter is a popular and desirable size for hot-iron branding. Hot irons need handles at least  $2\frac{1}{2}$  feet long to permit easy handling. Stamping irons for liquid branding have concave faces and shorter handles.

Electric branding irons are stamp irons made from nichrome steel. The heat they deliver can be varied and regulated. They often are

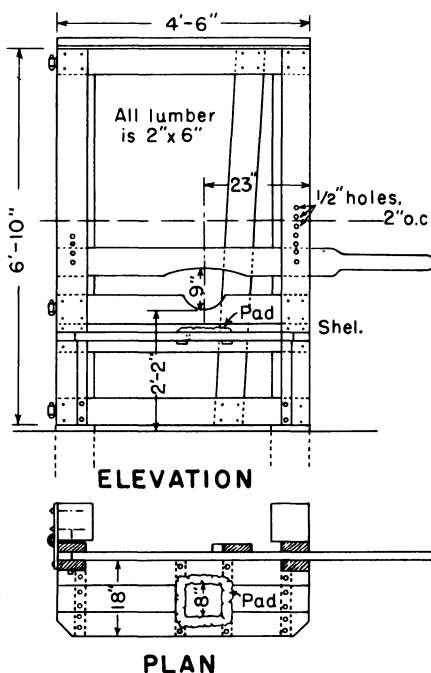
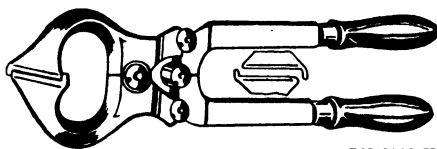


Figure 13.—A practical type of stanchion gate. In this type the nose is placed in a hole and held there by a bar pressing downward against the top of the neck.



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Figure 14.—One type of mechanical pincers, or clamps, used in bloodless castration.

used with electric dehorning saws (fig. 11) and electrically heated dehorning irons (fig. 3).

Keep branding irons free from rust and out of the weather when they are not in use.

## APPLYING BRANDS

*Hot-iron branding.*—Wood is the best fuel for a branding-iron fire. Before applying a hot iron, see that it is hot, but not too hot. When properly heated, the iron is ash gray.

Deep burning is cruel and unnecessary. If the hide surface is merely scorched, the brand usually peels and remains distinct. Slipping an iron usually results in a poor imprint.

Wet or damp animals cannot be branded successfully. The brand will scald or leave a blotch, a bad sore, or no imprint at all.

*Liquid branding.*—Dip the iron in about  $\frac{1}{8}$  inch of branding fluid that has been stirred thoroughly. Apply the brand to a surface that has short, dry hair.

It is difficult to control the depth of liquid brands. If they are applied too lightly, they soon disappear.

It also is difficult to keep them from being distorted. Water on the raw branded surface will cause the burn to spread. Distortion also occurs if, before the fluid dries, the animal licks it or switches it with his tail.

*Freeze branding.*—A coolant is applied to the branding area to destroy the pigment-producing cells. This

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results in the growth of white hair and provides permanent identification.

For white-coated animals, extreme cold for longer periods of time will leave a bare skin brand.

Obtain the recommended method of application for your area from your county agricultural agent.

## **GENERAL BRANDING CONSIDERATIONS**

The following are recommendations of the Montana Livestock Commission:

"Choose a good brand, one that is distinctive, and readily recognized. The Recorder of Marks and Brands will aid you in selecting a brand which has the desired qualities within the limits imposed by brands already on record.

"Have your brand recorded. Unrecorded brands afford little or no protection and result in much confusion with consequent loss and waste.

"Apply the brand properly. It should be on the position recorded, of sufficient size to be readily seen, and should be clearly and cleanly burned in with a hot iron having faces at least  $\frac{3}{8}$  inch wide, and letters, figures, or characters should be 4 inches in length.

"Give a proper bill of sale when selling. Protect yourself and others by insisting that the buyer take a completely and properly filled out bill of sale.

"Require a proper bill of sale when buying. Be particular as to brands and the legal requirements of the bill of sale. By doing so you will save yourself much trouble, annoyance, and expense in future transactions.

"When offering stock for sale which carry brands other than your own, be

prepared to prove ownership.

"In order to avoid delay give you local inspector as much advance notice as possible when requiring inspections."

## **MARKING CUTTING THE EARS**

The practice of marking cattle by cutting the ears is almost as widespread as branding and usually is done at the same time as branding. It is not uncommon for cattlemen to perform all operations—castration, branding, and marking—at the same time. Earmarks are rather secondary to branding, although they are recorded in the brand records and are protected by law. Either or both ears may bear a mark. Marking is done so cattle can be identified from the direct front or rear. It often is difficult to get a side view of wild cattle in pasture or on the range.

A sharp knife should be used in marking cattle; the cartilage of the ear usually is tough, and clean cuts should be made. Some of the common marks are described below and are illustrated in figure 16.

**Crop.**—Fold the ear lengthwise and make the cut at right angles to the folded edge.

**Overslope.**—Make an incision a fraction of an inch from the point, toward the head, where the upper surface of the ear turns up. Cut down in a rounding manner approximately  $\frac{1}{2}$  inch and then cut outward parallel to a line that would halve the ear lengthwise. A little upward slope given to the last cut gives a graceful curve.

**Underslope.**—The underslope cut is on the underpart of the ear, and the first cut is made in an upward manner. The second, is practically the same as in an overslope.



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Figure 15.—Branding calves by the hot-iron method.

**Swallow fork.**—Fold the ear lengthwise. From a point  $\frac{3}{4}$  inch or 1 inch from the tip, depending on the size of the ear, cut toward the outer edges in such direction or manner that a triangular section with a  $\frac{1}{2}$ - or  $\frac{3}{4}$ -inch base will be removed.

**Steeple fork.**—Fold the ear lengthwise. Make the first cut at right angles to the seam, and the second parallel to the seam. Remove a rectangular section of the ear.

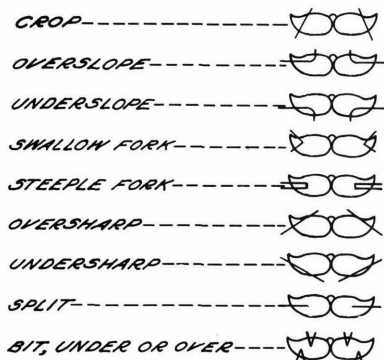
**Oversharp.**—The cut is begun at

the same point as for an overslope, but brought downward and in a straight line to the median line at the tip of the ear.

**Undersharp.**—Cut in straight line between same points as in an underslope.

**Split.**—The knife blade is inserted and drawn to the outer edge of the ear.

**Bit, under or over.**—Fold the ear crosswise at the point where the bit is to be made. Remove a triangular section, as in making a swallow fork.



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Figure 16.—Common earmarks.

## TATTOOING

Tattooing the ears is a method of marking cattle especially adapted for use in purebred herds. It is considered a more permanent method of identification than cutting the ears. The tattooing is done with a special instrument (fig. 17) that places characters, letters, or numerals in and under the skin of the ear by means of a series of needlelike points, which are dipped in a special indelible ink before application. The operation is

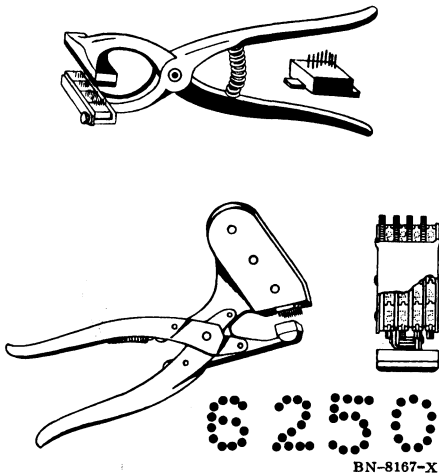


Figure 17.—Two types of tattooing instruments. *Above*, an inexpensive simple type with interchangeable numbers and letters. *Below*, a rotary type suitable for large herds and for situations where speed is important.

a simple one and does not make an open wound. It is advisable to apply additional ink to the ear after the perforations have been made to insure the permanence of the identification. Tattooing instruments are obtainable from most dealers who handle stockmen's supplies.

## EARTAGGING

Eartagging is still another method of identification that, like tattooing, is used largely on purebred herds. Metal tags, or buttons, are clamped into the ear by means of special clamps. The tag or button carries the identification number or letters. Both the tags and clamps for placing them in the ears may be obtained from dealers who handle stockmen's supplies.

Washington, D.C.

## NECK CHAINS

In some instances, owners of purebred cattle prefer not to make permanent identifications with earmarks, eartags, or tattoo marks in the ears, but use neck chains that carry special identification numbers. Chains for the purpose may be purchased from supply houses. Hip brands bearing identification numbers usually are more desirable than neck chains where cattle run on a brushy range.

## DEHORNING AND BRANDING CHUTES

Chutes made with one movable side—squeezes—hold animals snugly and safely under pressure and can be used when cattle are branded, castrated, or vaccinated. (See fig. 12.) They are better than chutes with stationary sides because the animals can be held more securely. Several commercially made squeeze chutes are available and ease of operation and construction costs should be considered in deciding whether to buy or build a chute.

A chute with stationary sides is easier to construct and is satisfactory where numbers of cattle to be handled are not large.

Dehorning gates must be made to hold an animal's head absolutely firm. There are many satisfactory designs for dehorning gates. Figure 13 shows a type that is frequently used by cattlemen. Specifications appear with the drawings.

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